

MATAS (R.)

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Extrauterine (Cubal) Pregnancy

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WITH RUPTURE OF SAC; REPEATED HEMORRHAGE; LAP-
AROTOMY; CONVALESCENCE COMPLICATED BY SEC-
ONDARY ABSCESS OF THE LIVER; TRANS-
PLEURAL HEPATOTOMY; RECOVERY.

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EXTRAUTERINE (TUBAL) PREGNANCY.

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BY RUDOLPH MATAS, M.D.

The reports of cases of ectopic pregnancy that have been successfully treated by direct surgical intervention while in the grave collapse that accompanies the rupture of the sac have been so frequent of recent years that they have lost even the merit of novelty. In fact, the literature of the subject is so saturated with clinical and pathologic reports, which bring into relief every phase of this condition, that it is not surprising that the instruction to be derived from the record of individual cases is well-nigh exhausted. Nevertheless, it is not improbable that the mere record of results in operated cases has some value from a statistic and collective point of view, even if only to illumine the prognosis and encourage the surgeon in interfering and hoping for recovery when confronted by the most desperate and apparently hopeless conditions. The present instance, however, is contributed more especially to direct attention to a complication of very exceptional occurrence—judging at least by the universal silence of recent authors and operators—and yet of such gravity and importance as to justify its consideration as a possible, if rare, factor in the clinical history of the subject.

The complication referred to is an acute circumscribed suppurative hepatitis, apparently the result of portal infection starting in the intestinal walls or, pos-

sibly, though not probably, in the peritoneum itself. It is evident that this complication is not peculiar to the convalescence or clinical history of ectopic pregnancy, but may occur in any form of septic peritoneal traumatism associated with intestinal paresis, and more particularly, as in this case, when a septic enterocolitis with putrid stools occurred following immediately after the intestinal stasis of peritonitis.

On Dec. 19, 1897, I was called by Dr. M. Herman to examine Mrs. P., an employe of a well-known tobacco factory in this city. I obtained the following facts preliminary to my examination: The patient, a married woman, white, about 30 years of age, a native of this city and of German parentage, has always enjoyed good health and has been married several years. Her husband is a healthy man of about her own age. She has been pregnant three times before the present conception. The first child is living and well; the second died two months after birth, from some obscure nervous trouble. She had a miscarriage subsequently. Her present trouble dates with the suppression of menstruation, which took place about twelve weeks previous to this visit. The patient believes that she is pregnant. Apart from the suppression of the menses she noticed no change in her health and attended to her usual duties at the factory until two weeks ago, when, in the evening, while walking in the street, from the factory to her home, she was taken suddenly ill with an acute abdominal pain in the hypogastrium. This pain was accompanied by great prostration, dizziness, a sinking feeling, faintness, cold sweat and a deathly pallor which was noticed by those who accompanied her. She was in a state of collapse when picked up by her friends, who put her in a cab and took her home. At home, she was attended by a neighboring physician, who administered morphia, atropia and restoratives. She finally rallied, but regained strength very slowly, always complaining of pain and tenderness in the lower abdominal region. She had discharged her

medical attendant and was preparing to return to her post in the factory, when (December 18) she was again seized with violent abdominal pains and great prostration.

It was then that Dr. Herman, the physician of the factory, was called to attend her, and found her in a collapsed condition, with cold, clammy skin, subnormal temperature, weak, thready pulse, widely dilated pupils and a colorless and exsanguinated appearance. The abdomen was considerably distended, especially in the hypogastric region, with great tenderness over the swollen area. Vaginal examination was unsatisfactory; the uterus was displaced downward and to the right, fixed and immovable; the posterior cul-de-sac was distended by a semifluctuating mass that filled the pelvis. Dr. Herman was convinced that he was dealing with a ruptured ectopic pregnancy. The next day, December 19—two weeks after the first signs of rupture—I examined the patient and found her condition improved. There were signs of a general peritoneal reaction. Abdominal tenderness and distension was more marked, but there was no acute pain, no vomiting; temperature was 99.8, pulse 120, very compressible, but evidently responding to the digitalin and strychnin given since the previous day. A vaginal examination confirmed the results obtained by the attending physician. There was evidently a semisolid mass which jammed the uterus downward toward the pelvic outlet and filled the pelvic cavity, projecting to the level of the iliac crest on the left side. The general appearance of the patient was that of a profound anemia; the skin was colorless, the conjunctivæ were exsanguinated, the lips were blanched and the hands waxy. We feared that she could scarcely stand removal to a sanitarium, but finally concluded to take the risk, in view of her exceedingly unfavorable surroundings for operative treatment.

The patient was admitted to the N. O. Sanitarium December 20. She was so weak and exhausted that we feared that she would never be able to survive an

operation. She was at once warmed up in bed, after which ice-bags were applied to the lower abdomen. Strychnin was given hypodermically, and the bed was tilted high up at the foot to diminish pelvic engorgement as well as favor the cerebral circulation. She was constantly watched by the nurse in charge, who administered frequent but small doses of peptonized milk, panopepton and hot tea, at frequent intervals. The nurse was soon able to report that the pulse had improved.

The next day, after thorough preparation, an exploratory puncture into the swelling was made through the posterior vaginal wall and a syringeful of pure blood was quickly aspirated. This examination also showed that the tumor had not increased. Diagnosis of pelvic hematocoele, caused by ruptured tubal pregnancy, was confirmed, and we decided to operate, but not immediately, preferring to wait a little longer for further improvement in the patient's condition. The peril of delay was thoroughly appreciated, but the risk of operating in so deplorable a condition appeared to us still greater, and we temporized. We were also encouraged in this course by the evident arrest of bleeding.

On December 21, while a hot douche was being administered, the patient passed a complete cast of the uterine cavity, evidently the decidual membrane. The expulsion of this membrane was attended by colicky pain and some bleeding. The picture of abortion was complete except that no embryo had been expelled. The patient herself believed she had aborted, and expressed herself as being much relieved by the occurrence. She also explained that her first attack of abdominal pain and prostration coincided with the usual date of her menstruation.

From December 20 to 24, nothing was done except to observe and strengthen the patient. The urine, which was normal, was kept diluted by drinking large quantities of pure water; the bowels were moved regularly by enemata and saline aperient draughts; the

amount of putrid material in the intestinal canal was reduced to a minimum by a careful laparotomy diet, consisting largely of milk, cereals and cooked fruits. Strychnin in 1/40-grain doses was kept up steadily every six hours. Under these conditions her strength and spirits improved decidedly. The temperature remained at 100 F., pulse 117, and pains were being subdued, when, on December 24, the whole aspect of the case again changed for the worse. The pulse became suddenly more rapid, the pallor more marked and the tumor above the pelvic brim rose higher. The tension in Douglas' cul-de-sac became greater than ever before, and the pains in the hypogastrium grew intolerably acute. It was evident that the time to act had come, and we decided to operate that evening.

After thorough irrigation the uterus was curetted and packed with iodoform gauze. The right arm was also prepared for intravenous saline infusion, the median basilic vein being exposed so that no time would be lost in injecting the saline solution which we had every reason to believe would be required in the course of the operation. A preliminary hypodermic of 1/40 gr. strychnin and 1/100 digitalin, was also given before beginning with the anesthetic. A few drops of chloroform were first given in an Esmarch inhaler, after which the anesthesia was continued with ether.¹ The patient was placed in the Trendelenburg position. A median incision four inches in length was made and subsequently enlarged to five inches. The peritoneum, which was very tense, bulged into the wound.

Upon dividing the serosa, a dark membranous mass which resembled a cyst appeared. The mass was adherent on all sides, but was well defined above where it was attached to the omentum. Not knowing exactly what it was, I decided, before attempting fur-

¹ Drs. Larue, Gessner and Delaup rendered most valuable assistance in the operation; the sanitarium corps of nurses also gave very effective aid, and it is due, in a great measure, to their constant care and unfailing vigilance in the after-treatment that the patient finally recovered.

ther manipulations, to tap it with a trocar, but only a little blood came. An effort was then made to detach it by inserting the hand into the wound, but the adhesions were so intimate with the abdominal wall that I had to incise it by cautiously cutting into it in the median line. After penetrating through a thick cortex of exudates and fibrinous layers—for this they turned out to be—a large quantity of clotted and liquid blood gushed out. The hand was now introduced into the cavity of the pseudo-cyst and its true nature was at once clearly recognized. It was simply a vast hematocele which filled the pelvis, forming an irregular ovoid, the center of which was occupied by the uterus and left Fallopian tube, or at least what remained of it. Its upper boundaries were formed by the intestinal mass, which had been displaced upward to the level of the umbilicus, where a wall of soft and recent adhesions with the omentum and exudates excluded the general peritoneal cavity. After scooping out by handfuls over three pounds of fresh clot and blood, the remnants of the left Fallopian tube were clearly recognized. A large mass of thick membrane was now felt and peeled off, with an attached layer of dense fibrinous exudate, from the center of the left broad ligament, in which it appeared to be fixed and buried. The Fallopian tube, as stated, existed only in fragments; its central part had evidently been distended, and was continuous with the corresponding broad ligament, with which it formed the irregular torn wall of a large cavity filled with blood and exudates. The appearance of the parts plainly indicated that a primary hematocele had existed in the tube, and that this had ruptured secondarily into the broad ligament, the third rupture taking place in the posterior surface of the broad ligament through a large ragged aperture from which the blood and ovum had ultimately escaped into the general pelvic cavity. The walls of the cavity thus formed by the broad ligament and adherent tube were very edematous and friable. The uterine pedicle of the tube was

very soft, and so friable that it was cut through completely whenever a ligature or traction was applied to it. For this reason a ligature was applied directly to the uterine cornu itself. Another ligature was applied to the ovarian end of the tube. The left ovary was recognized with some difficulty, and enucleated out of a bed of dense adhesions and thick exudates which formed part of the adventitious sac to which the ovum and its membranes had been attached. There was no recognizable embryo, only a pseudo-placental mass which was peeled off from the interior of the sac formed by the left broad ligament. The walls of the large adventitious sac were adherent to the sacrum, rectum and small intestine posteriorly, and pieces of membrane had to be left attached to these parts for fear of perforating the bowel while attempting to remove them.

The upper limits of the hematoma, or rather of the exudates that encapsulated it, were attached to the abdominal walls and bladder anteriorly, reaching as high as the umbilicus; posteriorly, the promontory of the sacrum marked the upper boundary. The uterus, which was enlarged to the size of a three-months gestation, projected in the center of the hematocoele and was covered with fibrinous deposits and pseudo-membranes. The right broad ligament was very much distended and its corresponding tube was displaced upward by an intraligamentous cyst as large as a cocoanut. This cyst also contributed to displacing the uterus upward and forward. A ligature was also applied to the right cornu of the uterus and another at the ovarian pedicle, after which the right tube was excised. The cyst in the broad ligament, which contained a clear, straw-colored fluid, was tapped, then excised freely and packed with iodoform gauze. A great deal of blood serum and blood oozed out of the cavity in the left broad ligament, compelling a very thorough packing with iodoform gauze on the Mikulicz plan.

In the meantime, the patient showed signs of great

exhaustion; respiration very rapid, the pulse rose to 160 and became almost imperceptible at the wrist. Ether was stopped, ammonia applied to the nose and the pelvis was thoroughly flushed with hot saline solution poured in with a pitcher and used as a restorative as well as for the purpose of washing out fragments of clot and tissues. Simultaneously, 50 ounces of decinormal saline solution were injected into the basilic vein. Immediate improvement followed the intravenous infusion and the pulse fell to 112, when it was discontinued. All provisional gauze packs were now removed from the abdominal cavity and the Mikulicz tampon, very systematically applied, was resorted to instead. The peritoneum was closed with continuous catgut suture, leaving space for the drain. The patient was put to bed at 4 P.M., one hour and a half after the abdominal section had begun.

The first record after the patient reached her room shows a pulse of 130-140, but of fair quality.

December 25: Temperature 101, pulse 144, fairly good quality; very free drainage from wound, requiring complete change of dressings; nausea and occasional vomiting. The following rectal enema was given every four hours: beef juice 3*i*, whisky 3*ss*, tinct. digitalis $\frac{v}{x}$, decinormal saline solution 3*vi*, every four hours. Hypodermically: strychnia nitrate $\frac{1}{40}$ gr., digitalin $\frac{1}{100}$ gr., every four hours; chopped ice occasionally, alternating with sips of hot water every hour to assuage thirst.

December 27: Temperature was 102, pulse 128; considerable tympanites; no bowel movements, but some gas passed after repeated turpentin enemata.

December 28: Calomel and soda triturations, $\ddot{\text{a}}$ 1 gr., were given by mouth every hour, with small drinks of dilute champagne, iced; after ten of these had been taken a small movement of the bowels was obtained, with some relief of the tympanites.

December 29 (fifth day): Mikulicz drain removed; copious enemas of turpentin, repeated frequently, to expel gas and relieve abdominal tension; temperature 101, pulse 114.

December 29 to January 8: Diarrhea with some tenesmus took the place of the constipation, the patient having as many as five and six movements daily. The stools were copious, watery, pale and fetid. The temperature oscillated from 101 to 102.8, but the pulse showed a tendency to become slower, 108-106; respiration 28.

January 7 (thirteenth day after operation): Abdominal

wound doing well; all sutures had been removed, small gauze drain left in wound, but patient complains of *dull pain in right hypochondrium*. Temperature 102.4, pulse 106; bowel movements checked by bismuth subnitrate, but during the night profuse perspiration followed by fall in temperature to 100. The patient now nourishes fairly well; liquid and semisolid food retained.

January 7 to 12: Hectic fever was marked, the temperature rising to 102.8, pulse 120 and respirations 48, followed by profuse sweating and remission at night; pain in hypochondrium continues, area of hepatic dulness increases and it is decided that suppurative hepatitis from bowel infection exists. Diarrhea is now checked, but stools continue fetid. In the meantime the right side of chest and hepatic region has been kept covered with ice-bags, which apparently give relief to pain, but do not perceptibly diminish the size of the liver, which projects about three inches below the costal arch in right hypochondrium.

January 12 (nineteenth day after laparotomy): Aspirated (Potain's aspirator) over two pints of a watery, serous pus, herring-sauce color, odorless. The needle was introduced in the eighth interspace and penetrated $3\frac{1}{2}$ inches before reaching pus. A specimen was preserved in culture-tubes and submitted to Dr. Pothier, pathologist of the Charity Hospital, who, in a few days, reported that he had been able to obtain pure cultures of a long chain coccus. In this way the streptococcal nature of the hepatic infection was established. Hectic ceased after this aspiration; all symptoms were much relieved. Temperature fell to 99.6, pulse 100, respirations 26; ice-bags continued to chest and hypochondrium. The improvement was maintained for several days; patient was out of her room in rolling chair and in good spirits; nourished much better.

By January 25 (thirteenth day after aspiration) the temperature had gradually risen again to 101, pulse 100, respirations 30, and the liver area again increased in size.

January 25: The needle of the aspirator was introduced in the ninth interspace, in the anterior axillary line and one pint of yellow, creamy pus was aspirated. The ice-bags to right chest and hypochondrium had been kept up, with no other effect than to relieve pain. The bowel movements were controlled; abdominal wound nearly healed except at small drainage point, where a sinus remained.

February 1 (nineteenth day after first aspiration of liver): In view of persisting temperature with returning tendency to nocturnal sweats, decided to open liver freely. Under Schleich local anesthetic mixture (Formula No. 2), $3\frac{1}{2}$ inches of the ninth rib were excised; the right pleural cul-de-sac was found obliterated and the abscess in the liver opened freely, the incision through the cortex of the liver, corresponding in length to the external incision. The liver was adherent to the diaphragm. The

cortex of the liver, which held the abscess cavity, was nearly two inches thick. Over one pint of thick pus and slough flakes were removed through the incision, after which the liver was firmly anchored to the intercostal spaces and skin by deep sutures passed into the cavity of the abscess with the Reverdin needle. The abscess cavity was swabbed with large gauze packs soaked in hydrogen peroxid, to remove loose sloughs. The cavity was then packed systematically with large strips of iodoform gauze, over which was applied an abundant iodoform gauze and plain sterile dressing. The temperature rose to 102.8, pulse 126, respiration 36, the next day, but after this steadily declined little by little, until January 13, when it became normal, with pulse 86 and respiration 20. The tampon in the liver was not removed until the thirteenth day after the evacuation of the abscess, as it had remained sweet; odorless up to this time. Only the outside dressings were changed. When the tampon was removed the cavity of the liver was found clean, presenting a healthy granular appearance and necessitating only a comparatively small drain. The patient continued to improve and left the sanitarium Feb. 28, 1898, sixty-six days after laparotomy and twenty-eight days after hepatotomy.

Synopsis.—The patient had missed menstruation six weeks before first intraperitoneal hemorrhage, which took place Dec. 5, 1897; second hemorrhage Dec. 19, 1897; laparotomy with extirpation of ovum and tube, December 24 (or nineteen days after first rupture); Jan. 12, 1898, first aspiration of pus from liver; January 25 (thirteenth day after), second aspiration of liver; February 1, hepatotomy; February 28, patient left sanitarium convalescent, i. e., sixty-six days after laparotomy for ectopic pregnancy, twenty-eight days after hepatotomy for abscess of liver, and eighty-five days after first signs of intraperitoneal hemorrhage.

Conclusions.—The history of the case and the anatomic conditions revealed by operation lead to the following conclusions:

1. That ectopic pregnancy reaching nearly up to the third month of gestation existed in the left Fallopian tube.
2. That some time after the second month the tube ruptured into the corresponding broad ligament, forming an intraligamentous hematocoele.
3. That the hematocoele continued to increase until it also ruptured into the general peritoneal cavity, where the hemorrhage became partially encysted, forming a large intraperitoneal hematocoele.
4. Coincidently or prior to the ectopic pregnancy an

intraligamentous cyst formed in the opposite broad ligament.

5. The value of intravenous saline infusion was demonstrated in tiding over the dangerous crisis caused by shock and hemorrhage during the laparotomy required to extirpate the sac, evacuate the blood collection and secure the vessels.

6. Septic bowel infection following the intestinal paresis of a moderate (limited) postoperative peritonitis.

7. Septic infarct of liver through portal vein as a consequence.

8. Aspiration of liver and removal of typic streptococcal pus.

9. Free hepatotomy after resection of ribs, followed by final and complete recovery.

